

PETER H. BARRY, PhD
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Marine Chemistry and Geochemistry Dept.

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Positions

2022-Present	Woods Hole Oceanographic Institution, USA – Associate Scientist without tenure
2019-2022	Woods Hole Oceanographic Institution, USA – Assistant Scientist
2014-2018	University of Oxford, UK – Postdoctoral Research Associate
2012-2014	University of Tennessee, Knoxville, USA (NSF EAR-Postdoctoral Fellow)

Academic Preparation

2011-2012	Scripps Institution of Oceanography, UCSD, USA – (President’s Dissertation Fellow)
2006-2012	Scripps Institution of Oceanography, UCSD, USA – Ph.D. Earth Sciences
2006-2011	Scripps Institution of Oceanography, UCSD, USA – M.S. Oceanography
2008	The University of Tokyo, Japan – AORI – visiting researcher (NSF EAPSI Fellow)
2004	The State University of New York at Geneseo, USA – B.A. Geological Sciences

Research Interests

Volatile recycling, stable isotope and noble gas geochemistry; petrology – magmatic processes and the petrogenesis of volcanic/igneous rocks; geochemical co-evolution of Earth’s mantle and lithosphere; crust-fluid interaction; fluid-gas partitioning in crustal systems.

Supervising and Mentorship

Research Associates:

- Josh Curtice (Research Associate III) – 2019-present
- Dr. Mike Broadley (Research Associate III) – 2022-2023

PostDocs:

- Dr. Molly Anderson (WHOI-based NSF PostDoctoral Fellow) – 2023-present
- Dr. Kan Li (WHOI PostDoctoral Investigator) – 2023-present
- Dr. Mike Hudak (WHOI-based NSF PostDoctoral Fellow) – 2021-2022
- Dr. David Bekaert (WHOI PostDoctoral Scholar) – 2020-2022
- Dr. Jack Krantz (WHOI PostDoctoral Investigator) – 2020-2021
- Dr. Alan Seltzer (WHOI PostDoctoral Scholar) – 2019-2020

Graduate Students:

- PhD co-supervisor of Namitha Kumar (WHOI) – 2023-present
- MS co-supervisor of Karim Mtili (University of Dar es Salaam) – 2018-2022
- MS co-supervisor of Clarah Kimani (University of Dar es Salaam) – 2018-2022
- PhD co-supervisor of Dr. Rebecca Tyne (University of Oxford) – 2016-2021
- PhD co-supervisor of Dr. David Byrne (University of Oxford) – 2014-2019

Summer Student Fellows:

- Kiran Patil (Juniata College) – 2023
- Cassandra Bartels (LDEO/Columbia University) – 2022
- Redmond Stein (LDEO/Columbia University) – 2021

Formal Presentations

- RMAG meeting (Denver) – research presentation, March 2023
- Invited speaker** – AGU Fall meeting (Chicago), December 2022
- Invited Speaker – WHOI MC&G Seminar Series , November 2022
- Invited Speaker – SZ4D Community Meeting (Houston), November 2022
- GSA Fall meeting (Denver) – research presentation, October 2022
- AGU Fall meeting (New Orleans) – research presentation, December 2021
- Invited speaker – LDEO Geodynamics Seminar Series, October 2021
- Invited speaker – Khalifa University Seminar Series (Virtual), October 2021
- Invited speaker – Lyon Goldschmidt – Session 2h, July 2021
- Keynote speaker** – Lyon Goldschmidt – Session 3b, July 2021
- Keynote speaker** – The Geological Society, VMSG Annual Meeting (Virtual), January 2021
- Jp-AGU meeting (Japan/Virtual) – research presentation, July 2020
- Goldschmidt Conference (Hawaii/Virtual) – research presentation, June 2020
- Speaker – WHOI Geodynamics Seminar Series (Virtual), May 2020
- Invited speaker – University of Rhode Island, February 2020
- Invited speaker – Massachusetts Institute of Technology, January 2020
- AGU Fall meeting (San Francisco) – research presentation, December 2019
- Invited Speaker - Deep Carbon 2019 Meeting, Washington DC, October 2019
- Goldschmidt Conference (Barcelona) – research presentation, August 2019
- DINGUE Conference (ETH) – research presentation, August 2019
- Invited speaker – DCO Deep Energy Community Meeting, La Clusaz, France, January 2019
- Invited speaker - Geothermal Resources & Sustainable Development Workshop (Kenya), September 2018
- Goldschmidt Conference (Boston) – research presentation, August 2018
- AGU Fall meeting – research presentation, December 2017
- 3rd Deep Carbon Observatory Early Career Scientist Meeting, August 2017
- Goldschmidt Conference (Paris) – research presentation, August 2017
- DINGUE Conference (IPGP) – research presentation, August 2017
- Invited speaker – 68th GASG Colloquium, Natural Gas: Gas in Nature, July 2017
- Invited speaker – Woods Hole Oceanographic Institution, May 2017
- Keynote speaker** – UK Doctoral Training Program, Solid Earth Stream Conference, April 2017
- Speaker – University of Oxford – Brown bag lunch seminar, April 2017
- Invited speaker –Third DCO International Science Meeting, March 2017
- Invited speaker – University of Edinburgh, School of GeoSciences, March 2017
- Invited speaker – Cornell University, Earth and Atmospheric Sciences Dept., March 2017
- Invited speaker – Carnegie Institution – Department of Terrestrial Magnetism, October 2016
- Invited speaker – Smithsonian – National Museum of Natural History, October 2016
- Goldschmidt Conference (Yokohama) – research presentation, June 2016
- DINGUE Conference (Nancy) – research presentation, April 2016
- Invited speaker – University of Edinburgh, School of GeoSciences, October 2015
- Invited speaker – University of St. Andrews, Dept. of Earth and Environmental Science, October 2015
- University of the Azores: 2nd Deep Carbon Observatory Early Career Scientist Meeting, September 2015
- Goldschmidt Conference (Prague) – research presentation, August 2015
- Invited speaker – University of North Carolina, Chapel Hill, February 2015
- Speaker – University of Oxford – Brown bag lunch seminar, February 2015
- Invited speaker – University of Bristol, School of Earth Sciences – ‘Hot Stuff’ Seminar, November 2014
- Goldschmidt Conference (Sacramento) - research presentation, June 2014
- AGU Fall meeting – research presentation, December 2013
- Goldschmidt Conference (Florence) - research presentation, August 2013
- DINGUE Conference (Florence) – research presentation, August 2013
- Lunar and Planetary Science Conference (Houston) – research presentation, March 2013
- Speaker – University of Tennessee, Klepser Seminar, September 2012

- Speaker – Scripps Inst. of Oceanography – Isotope Geochemistry Laboratory Seminar, April 2012
- International Conference on Gas Geochemistry (San Diego) – research presentation, December 2011
- Goldschmidt Conference (Prague) - research presentation, August 2011
- DINGUE Conference (Paris) – research presentation, August 2011
- Invited guest lecturer for SIO 251 - Whole Earth Geochemistry, June 2011
- Invited speaker at Caltech - Geology Club seminar series, May 2011
- CIDER workshop participant and presenter – July 2010
- AGU Fall meeting – research presentation, December 2009

Awards, Outreach and Service

- [UNEARTHED](#) animated outreach film, Scientific American, 2023
- Scientific American, Science Quickly Podcast: [Meet the Magnificent Microbes of the deep Unknown](#), 2023
- SZ4D, Steering Committee, 2023-Present
- WHOI-MIT JP admissions Advisory Committee, 2022-present
- SZ4D, Research Coordination Network, 'Magmatic Drivers of Eruption' Working Group Co-Chair, 2022-Present
- Unlearning Racism in Geoscience (URGE) pod participant, 2021
- Award Committee for “Pete Burnard DINGUE Award”, July 2021
- Organizing Committee: NSF Funded East Africa Rifting Workshop (PI: Shillington), 2020-Present
- CONVERSE: Community Network for Volcanic Eruption Response, Research Coordination Network Working Group member, 2020-Present
- SZ4D, Research Coordination Network, 'Magmatic Drivers of Eruption' Working Group member, 2019-2022
- Deep Carbon Observatory 2019 Science Planning Committee, 2018-2019
- 2018 Recipient of the Deep Carbon Observatory Emerging Leader Award
- Facebook Live Event: ‘Sampling the Earth’s interior in Costa Rica’ at Wood Green School, 2018, Witney, UK
- Co-supervised three African masters students, 2018-present
- Best Science Documentary – Goldschmidt Film Festival 2017 – hosted by Wild Orbit Films
- University of Oxford, Vice-Chancellor's Award for Public Engagement, 2017
- Deep Carbon Observatory Early Career Scientist workshop organizer, 2017
- Public dissemination of large helium discovery in Tanzania. The story was run (went viral) on over 200 news outlets including *the BBC, New York Times, NPR, Washington Post, CNN, Wired, Gizmodo, IFLScience 2016*
- NASA/STFC lunar sample outreach lecturer for pre-schoolers, Oxford, UK 2016
- Outreach lecturer at the Cardinal Newman School in Luton, UK 2016
- Deep Carbon Observatory Synthesis Planning Workshop representative for Deep Energy 2015
- Deep Carbon Observatory Early Career Scientist workshop participant, 2015
- Invited outreach lecturer at “San Diego Continuing Education” 2014
- GK12 outreach program participant 2012-2014

Professional Activities

External PhD Examiner/Committee member:

- David Farsky, University of Auckland, September 2023
- Sarina Mitchell, University of Tennessee, July 2022-Present
- Dr. Joao Pedro Nogueira Lages; Università degli Studi di Palermo, January, 2020

- Dr. Jack Krantz; Brown University, December, 2019

Editorial Board Member:

- Chemical Geology

Proposal Reviewer:

- National Science Foundation
- Agence Nationale de la Recherche / French National Research Agency

Journal Reviewer:

- Annual Review of Earth and Planetary Sciences
- Nature
- Science
- PNAS
- Nature Geoscience
- Nature Communications
- Science Advances
- Geochemical Perspectives Letters
- Geology
- Earth and Planetary Science Letters
- Geochimica Cosmochimica et Acta
- Water Resources Research
- Chemical Geology
- Geology, Geophysics, and Geosystems
- Journal of Volcanology Geothermal Research
- Mineralogy and Petrology
- The Geological Society of London
- Journal of Geophysical Research: Solid Earth
- International Journal of Mass Spectrometry
- Solid Earth
- International Journal of Greenhouse Gas Control

Professional Organizations:

- American Geophysical Union (AGU) – Member
- Geological Society (GS) – Member
- International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI) - Member

Conference Session Convener:

- AGU 2023 – From Continental Rifts to Rifted Margins
- AGU 2021 – T026 - SZ4D: Interdisciplinary Studies of Subduction Zone Hazards
- Goldschmidt 2020 – 08e: Crustal Fluid Geochemistry in Energy-Related Systems: Empirical, Experimental, and Modelling Advances
- Goldschmidt 2020 – 03c: Earth's Volatile Cycles within the Crust-Mantle System: A Session in Honor of Dave Hilton
- Goldschmidt 2019 – 03g: Geochemical tracers of fluids in crustal systems
- Goldschmidt 2017 – 17f: Constraints on Past Carbon Cycle Dynamics and pCO₂
- Goldschmidt 2016 – 5g: The Deep Nitrogen Cycle and the Evolution of Planetary Atmospheres
- Goldschmidt 2016 – 7a: Cycling of Volatile Elements between Earth's Interior and Exterior Through Subduction Zones
- AGU 2016 – Volatiles within the Earth's mantle and core

Field Research Experience

- Greenland 2023: Sampling geothermal springs
- Argentina 2023: Sampling geothermal springs
- New Zealand 2023: Sampling geothermal wells and springs
- Italy 2022: Sampling geothermal springs
- Idaho/Oregon/Nevada 2022: Sampling geothermal springs
- Greenland 2022: Sampling geothermal springs
- Chile 2022: Sampling fumaroles and seeps
- Montana/Idaho/Wyoming 2021: Sampling geothermal springs
- Iceland 2021: Sampling volcanic gases and lavas
- Chile 2020: Sampling volcanic gases
- Yellowstone 2019: Sampling volcanic gases
- Ethiopia 2019: Sampling hot springs
- Argentina 2019: Sampling fumaroles and seeps in the volcanic backarc
- Ethiopia 2018: Sampling hot springs
- Tanzania 2018: Sampling volcanic gases and high He seeps
- Yellowstone 2018: Sampling volcanic gases
- Panama 2018: Groundwater sampling in the volcanic forearc
- Costa Rica 2018: Lead PI on DCO funded 'Biology Meets Subduction' field expedition – part 2
- Orcutt, California 2018: Produced water, oil and gas sampling
- Iceland 2017: Sampling fluids, gases and lavas from Northern Rift Zone
- Sicily 2017: Sampling fluids, gases and lavas from Etna Volcano
- Nicaragua 2017: Sampling fluids, gases and lavas from Telica Volcano
- Costa Rica 2017: Lead PI on DCO funded 'Biology Meets Subduction' field expedition – part 1
- Tanzania 2016: Testing portable mass spectrometer on high He seeps
- Lost Hills, California 2016: Produced water, oil and gas sampling
- Papua New Guinea 2016: Volcanic gas sampling
- Bakersfield, California 2016: Groundwater and oil and gas sampling
- Tanzania 2016: High helium natural seep sampling
- West Texas & Louisiana 2016: Methane sample collection
- Tanzania 2015: High helium natural seep sampling
- South Texas 2015: Methane sample collection
- Northern Germany 2014: Methane sample collection
- Southern California 2014: Groundwater sampling in the Santa Barbara Basin
- Costa Rica 2014: Deployment of SPARTAH; collection of geothermal fluids and groundwaters
- Panama 2013: Groundwater sampling in the volcanic forearc
- Central California 2014: Groundwater sampling along the San Andreas Fault
- China 2011: Sampling of volcanic fluids and gases
- Costa Rica 2010: Sampling fluids and gases
- Tanzania 2009: Sampling lavas, xenoliths, geothermal fluids and gases
- Japan 2008: Sampling geothermal gases
- California: Deployment of SPARTAH; collection of geothermal fluids and groundwaters
- Mascarene islands 2007: Sampling of lavas and xenoliths
- Central Indian Ridge 2007: SIO Knox11 research cruise (R/V Revelle) - Dredging for glasses
- Iceland 2007: Test deployment of SPARTAH; Sampling of lavas, xenoliths and geothermal fluids
- Costa Rica & El Salvador 2007: Sampling geothermal fluids and gases; Mini-DOAS: SO₂ fluxes

In Review

92. Li, K., Jie Yu, A., **Barry, P.H.**, and Li, L. (2023) Oceanic serpentinites: A potentially critical reservoir for deep nitrogen recycling. *Geology*. In Review.
91. Kwagalakwe, A., Stamps, D.S., Njinju, E., Atekwana, E., Kiberu, J.M., Taylor, M., Evans, R.L., Katumwehe, A.B., **Barry, P.H.**, Mwongyera, H., Kabanda, A., (2023) Investigating Melt Generation Beneath the Northern Western Branch of the East African Rift Using 3D Geodynamic Modeling with ASPECT. *Tectonophysics Journal*. In Review.
90. Michael R Hudak^{1,2,*}, Peter H Barry², David V Bekaert^{2,3}, Stephen J Turner⁴, Kristina Walowski⁵, Sune G Nielsen², Joshua M Curtice², Rebecca L Tyne², Emily Cahoon⁶, Paul Wallace⁷, Michelle Muth⁸, Alison M Shaw (2023) Olivine and pyroxene-hosted fluid inclusions record high arc nitrogen fluxes and multiple slab sources. *GRL*. In Review.
89. Bekaert, D.V., **Barry, P.H.**, Krantz, J.A., Curtice, J., Blusztajn, J., Hudak, M. Seltzer, A., Broadley, M.W., Wanless, V.D., Jones, M.R., Soule, S.A., Mittelstaedt, E., Kurz, M.D. (2023) Carbon, Nitrogen, and multi-isotope study of the upper mantle near 14°N on the Mid-Atlantic Ridge. Part II: Source effects. *GCA*. In Review.
88. Bekaert, D.V., **Barry, P.H.**, Krantz, J.A., Curtice, J., Blusztajn, J., Hudak, M. Seltzer, A., Broadley, M.W., Wanless, V.D., Jones, M.R., Soule, S.A., Mittelstaedt, E., Kurz, M.D. (2023) Carbon, Nitrogen, and multi-isotope study of the upper mantle near 14°N on the Mid-Atlantic Ridge. Part I: Degassing effects. *GCA*. In Review.
87. Adeniyi, E.O., Tyne, R.L., **Barry, P.H.**, Darrah, T.H., Hubbard, M.S., Myers, M.L., Bowen, D.H., Calavan, C.W., Shaw, C.A. (2023) Origin of CO₂ in Upper Devonian Duperow Formation and the Bakken Petroleum System at Kevin Dome, Northwest Montana. *Chemical Geology*. In Review.
86. Bekaert, D.V., Caracausi, A., Byrne, D.J., Broadley, M.W., **Barry, P.H.**, Marty, B., Seltzer A.M. (2022) Primordial and ²⁴⁴Pu-derived xenon missing from Earth's convecting mantle. *Nature*. In Review.
85. Bastianoni, A., Cascone, M., de Moor, J.M., **Barry, P.H.**, Price, R., Cordone, A., Aiuppa, A., Fischer, T.P., Giovannelli, D. (2023). The missing carbon budget puzzle piece: shallow-water hydrothermal vents contribution to global CO₂ fluxes. *GRL*. In Review.

Published

84. Paul, R., Rogers, T.J., Fullerton, K.M., Selci, M., Cascone, M., Stokes, M.H., Steen, A.D., de Moor, J.M., Chiodi, A., Stefánsson, A., Halldórsson, S.A., Ramirez, C.J., Jessen, G.L., **Barry, P.H.**, Cordone, A., Giovannelli, D., Lloyd, K.G. (2023) Complex organic matter degradation by secondary consumers in chemolithoautotrophy based subsurface geothermal ecosystems. *PLOS One*. In Press.
83. Tyne, R.L., Lawson, M., **Barry, P.H.**, Summers, Z., Ballentine, C.J. (2023) Understanding the role of microbial methanogenesis in CO₂ storage. *ES&T*. In Press.
82. Helper, J.P., Barnes, J.D., de Moor, J.M., Rodríguez, A., **Barry, P.H.**, Ramos, E.J. and Lassiter J.C. (2023) Li isotope ratios of spring fluids as an effective tracer of slab-derived subducted sources across the Costa Rica forearc. *Geology*. In Press.
81. Bekaert, D.V., **Barry, P.H.**, Broadley, M.W., Byrne, D.J., Marty, B., Ramírez, C.J., de Moor, J.M., Rodríguez, A., Hudak, M.R., Subhas, A.V. and Halldórsson, S.A., 2023. Ultrahigh-precision noble gas isotope analyses reveal pervasive subsurface fractionation in hydrothermal systems. *Science Advances*, 9(15), p.eadg2566. doi: 10.1126/sciadv.adg2566.

80. Hutchison, W., Ogilvie, E.R.D., Gebrewold, Y., **Barry, P.H.**, Fischer, T.P., Biggs, J., Albino F., Guðbrandsson, S. (2023) Gas emissions and sub-surface architecture of fault-controlled geothermal systems: a case study of the North Abaya geothermal area. *G³*. 24(4), e2022GC010822. doi: <https://doi.org/10.1029/2022GC010822>.
79. Ranta, E., Halldórsson, S.A., **Barry, P.H.**, Ono, S., Gunnarsson-Robin, J., Kleine, B.I., Ricci, A., Fiebig, J., Sveinbjörnsdóttir, A.E., Stefánsson, A. (2023) Deep magma degassing and volatile fluxes through volcanic hydrothermal systems: Insights from the Askja and Kverkfjöll volcanoes, Iceland. *Journal of Volcanology and Geothermal Research*. 436. 107776. doi: <https://doi.org/10.1016/j.jvolgeores.2023.107776>.
78. Seltzer, A.M., Nicholson, D.P., Smethie, W.M., Tyne, R.L., Le Roy, E., Stanley, R.H.R., Stute, M., Barry, P.H., McPaul, K., Davidson, P.W., Chang, B.X., Rafter, P.A., Lethaby, P. Johnson, R.J., Khatiwala, S.P., Jenkins, W.J. (2023) Dissolved gases track deep ocean ventilation processes in the deep North Atlantic. *PNAS*. 120 (11) e2217946120. doi: <https://doi.org/10.1073/pnas.2217946120>.
77. Rogers, T.J., Buongiorno, J., Jessen, G.L., Schrenk, M.O., Fordyce, J.A., de Moor, J.M., Ramirez, C.J., **Barry, P.H.**, Yücel, M., Selci, M., Cordone, A., Giovannelli, D., Lloyd, K.G. (2023) Patterns in chemolithoautotroph distribution across a subsurface convergent margin landscape. *ISME Journal*. 17 (1), 140-150. doi: <https://doi.org/10.1038/s41396-022-01331-7>.
76. Giovannelli, D., **Barry, P.H.**, de Moor, J.M., Jessen, G.L., Schrenk, M.O., Lloyd, K.G. (2022) Sampling across large-scale geological gradients to study geosphere-biosphere interactions. *Frontiers in Microbiology*. 4212. doi: 10.3389/fmicb.2022.998133.
75. Werner, C., Schipper, C.I., Cronin, S., **Barry, P.H.**, Stewart, M.K. (2022) Magmatic carbon and helium in springs reveals the vitality of a dormant volcano, Taranaki, New Zealand. *GRL*. vol 49, issue 18. doi: 10.1029/2022GL099273.
74. **Barry, P.H.**, de Moor, J.M., Chiodi, A., Barraza F.A., Hudak, M.R., Bekaert, D.V., Turner, S.J., Curtice, J., Seltzer, A.M., Jessen, G.L., Osses, E., Blamey, J.M., Amenábar M.J., Selci M., Cascone M., Bastianoni A., Nakagawa M., Filipovich R., Bustos E., Schrenk M.O., Buongiorno J., Ramírez C.J., Rogers T.J., Lloyd K.G., Giovannelli D. (2022) The helium and carbon isotope characteristics of the Andean Convergent Margin. *Frontiers in Earth Science*. Special Issue: Volcanism in the Central Volcanic Zone of the Andes. 10, 897267. doi: 10.3389/feart.2022.897267.
73. Bekaert, D.V., Curtice, J., Meie, M.M, Byrne, D.J., Broadley, M.W., Seltzer, A., **Barry, P.H.**, Kurz, M.D., Nielsen, S.D. (2022) Determining the noble gas cosmic ray exposure ages of 23 meteorites (8 chondrites and 15 achondrites) from modeling and empirical methods. *MAPS*. doi: <https://doi.org/10.1111/maps.13887>.
72. Tyne, R.L., **Barry, P.H.**, Cheng, A., Kim, J.H., McIntosh, J.C., Hillegonds, D.J., Ballentine, C.J., (2022) Basin architecture controls on the chemical evolution and 4He distribution of groundwater in the Paradox Basin. *EPSL*, 589, 117580. doi: <https://doi.org/10.1016/j.epsl.2022.117580>.
71. Halford, D., Karolytè, R., **Barry, P.H.**, Darrah, T., Cuzella, J., Ballentine, C.J., Sonnenberg, S. (2022) High Helium Reservoirs in the Four Corners Area of the Colorado Plateau, USA. *Chemical Geology*, 596, 120790. doi: <https://doi.org/10.1016/j.chemgeo.2022.120790>.
70. Halldórsson, S.A., Hilton, D.R., Marshall, E.W., Ranta, E., Ingvason, A., Chakraborty, S., Robin, J.G., Rasmussen, M.B., Gibson, S.A., Ono, S., Scarsi, P., Abebe, T., Hopp, J., **Barry, P.H.**, Castillo, P.R. (2022). Evidence from gas-rich ultramafic xenoliths for Superplume-derived recycled volatiles in the East African

sub-continental mantle. *Chemical Geology*, 589, p.120682. doi: <https://doi.org/10.1016/j.chemgeo.2021.120682>.

69. Danabalan, D., Gluyas, J.G., Macpherson, C.M., Abraham-James, T.H., Bluett, J.J., **Barry, P.H.**, Ballentine, C.J. (2022) The Principles of Helium Exploration. *Petroleum Geoscience*. doi: <https://doi.org/10.1144/petgeo2021-029>.

68. Giovannelli, D. **Barry, P.H.**, Bekaert, D.V., Chiodi A., Cordone, A., Covone, G., Jessen, G.L., Lloyd, K.G., de Moor, J.M., Morrison, S.M., Schrenk, M.O., Vitale Brovarone, A. (2021). Subsurface life can modify volatile cycling on a planetary scale. *Astrobiology*. Vol. 92, 60.

67. Tyne, R.L., **Barry, P.H.**, Lawson, M., Byrne, D.J., Warr, O., Xie, H., Hillegonds, D.J., Formolo, M., Summers, Z., Eiler, J.M., Ballentine, C.J. (2021) Rapid methanogenesis of CO₂ in geological carbon storage analogues. *Nature*, 600 (7890), 670-674. doi: <https://doi.org/10.1038/s41586-021-04153-3>.

66. Bekaert, D.V., Krantz, J.A., Seltzer, A.M., Patel, B.S., de Moor, J.M., Nakagawa, M., Giovannelli, D., Ramírez, C.J., Schrenk, M., Gazel, E. Halldórsson, S.A., Kulongoski, J.T., Turner, S., Ballentine, C.J., Beaudry, P., Fischer, T.P., Lloyd, K.G., **Barry, P.H.** (2021) Volatile fluxes in the volcanically-dormant portion of the Central American Subduction Zone: Southern Costa Rica and western Panama. *PNAS*. 118 (47). doi: <https://doi.org/10.1073/pnas.2110997118>.

65. Kimani, C., Kasanzu, C., Tyne, R.L., Mtili, K.M., Byrne, D.J., Kazimoto, E.O., Hillegonds, D.J., Ballentine, C.J., **Barry, P.H.** (2021) He, Ne, Ar and CO₂ systematics of the Rungwe Volcanic Province, Tanzania: Implications for fluid source and dynamics. *Chemical Geology*. 120584. doi: <https://doi.org/10.1016/j.chemgeo.2021.120584>.

64. Mtili, K.M., Byrne, D.J., Tyne, R.L., Kazimoto, E.O., Kimani, C., Kasanzu, C., Hillegonds, D.J., Ballentine, C.J. and **Barry, P.H.**, 2021. The origin of high helium concentrations in the gas fields of southwestern Tanzania. *Chemical Geology*, 120542. doi: <https://doi.org/10.1016/j.chemgeo.2021.120542>.

63. Tyne, R.L., **Barry, P.H.**, Karolytè, R., Byrne, D.J., Kulongoski, J.T., Hillegonds, D.J., Ballentine, C.J., (2021) Investigating the effect of enhanced oil recovery on the noble gas signature of casing gases and produced waters from selected California oil fields. *Chemical Geology*, 120540. doi: <https://doi.org/10.1016/j.chemgeo.2021.120540>.

62. **Barry, P.H.**, Bekaert, D.V., Seltzer, A.M., Halldórsson, S.A., de Moor, J.M., Fischer, T.P., Werner, C.A., Kelly, P.J., Franz, B.P., Krantz, J.A., Kulongoski, J.T., (2021) Helium-Carbon Systematics of Groundwaters in the Lassen Peak Region. *Chemical Geology*, 120535. doi: <https://doi.org/10.1016/j.chemgeo.2021.120535>.

61. Cheng, A., Sherwood Lollar, B., Warr, O., Ferguson, G., Idiz, E., Mundle, S.O.C., **Barry, P.H.**, Byrne, D.J., Mabry, J., Ballentine, C.J., (2021) Determining the role of diffusion and sedimentary basin architecture in ⁴He groundwater distribution and fluid age determination: the Willison Basin, Canada. *EPSL*, 117175. doi: <https://doi.org/10.1016/j.epsl.2021.117175>.

60. Karolytè, R., **Barry, P.H.**, Hunt, A.G., Kulongoski, J.T., Tyne, R.L., Davis, T.A., Wright, M.T., McMahon, P.G., Ballentine, C.J. (2021) Noble gas signatures constrain oil-field water as the carrier phase of hydrocarbons occurring in shallow aquifers in the San Joaquin Basin, USA, *Chemical Geology*. p.120491. doi: <https://doi.org/10.1016/j.chemgeo.2021.120491>.

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